

Notice of Allowability

Application No.

10/729,081

Applicant(s)

SILVERBROOK, KIA

Examiner

Art Unit

Roberts Culbert

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the application filed 12/8/03.
2. ☒ The allowed claim(s) is/are 1-7.
3. ☒ The drawings filed on 08 December 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☒ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 12/8/03
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

SUPPLEMENTAL EXAMINER
12/8/03

Priority

Acknowledgment is made of applicant's claim for priority under 35 U.S.C. 119(a)-(d). A claim for priority under 35 U.S.C. 119(a)-(d) cannot be based on the submitted foreign applications, since the United States parent application was filed more than twelve months thereafter.

Allowable Subject Matter

Claims 1-7 are allowed.

The following is an examiner's statement of reasons for allowance: The Prior Art of record fails to teach or render obvious a method of fabricating a micro-electromechanical device that includes a wafer, an elongate actuator arm that is anchored to the substrate at a fixed end and is connected to an electrical power supply, the elongate actuator arm having a free end that is displaceable to perform work when an electrical current is applied to the actuator arm and control circuitry that is positioned on the substrate to be interposed between the substrate and the actuator arm and for enabling and disabling the electrical power supply on receipt of a control signal, the method comprising the steps of: carrying out an integrated circuit fabrication process on the wafer to form the control circuitry; depositing sacrificial material on the wafer; etching the sacrificial material to form a deposition zone for a heater layer of a conductive material and contact regions for the heater layer to make electrical contact with the electrical power supply; depositing the heater layer on the etched sacrificial material; etching the heater layer so that the heater layer defines a heating circuit; depositing a layer of a dielectric material on the heater layer; depositing a bend compensator layer of the same material as the heater layer on the dielectric layer with substantially the same deposition characteristics as applied to the heater layer; etching the dielectric and bend compensator layers to define the actuator arm; and etching away the sacrificial material.

The claims of U.S. Patent Application Publication 2004/0094506 A1 to Silverbrook teach a method of fabricating a micro-electromechanical device including fabricating drive circuitry layers, depositing a sacrificial material layer, depositing a heater layer on the sacrificial material layer, etching the heater layer to define heating circuits, depositing a layer of a dielectric material on the heater layer; depositing a bend compensator layer of the same material as the heater layer on the dielectric layer with

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substantially the same deposition characteristics as applied to the heater layer; etching the dielectric layer to define the actuator; and etching away the sacrificial material.

However, the claims of U.S. Patent Application Publication 2004/0094506 A1 to Silverbrook do not recite the steps of etching the sacrificial material to form a deposition zone for a heater layer of a conductive material and contact regions for the heater layer to make electrical contact with the electrical power supply, depositing the heater layer on the etched sacrificial material, or etching the bend compensation layer to define the actuator arm.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

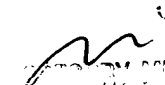
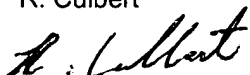
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Roberts Culbert whose telephone number is (571) 272-1433. The examiner can normally be reached on Monday-Friday (7:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (571) 272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. Culbert



GREGORY MILLS
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